

## **Appendix 2**

## INTRODUCTION

Federal agency compliance with pollution control is addressed through Section 313 of the Clean Water Act, Executive Order 12580 (January 23, 1987), National Nonpoint Source Policy (December 12, 1984), USDA Nonpoint Source Water Quality Policy (December 5, 1986) and the Environmental Protection Agency in their guidance "Nonpoint Source Controls and Water Quality Standards" (August 19, 1987). In order to comply with State and local non-point pollution controls the Forest Service will apply Best Management Practices (BMPs) to all possible non-point sources which may result from management activities proposed in this DEIS. These BMPs are the Soil and Water Conservation Practices described in the Forest Service Handbook (FSH) 2509.22.

BMPs are the primary mechanism for achievement of water quality standards (EPA, 1987). This appendix describes the Forest Service's BMP process in detail, and lists the key Soil and Water Conservation Practices that have been selected to be used in the action alternatives analyzed in this DEIS.

BMPs include, but are not limited to, structural, and non-structural controls, operations, and maintenance procedures. BMPs can be applied before, during, or after pollution-producing activities to reduce or eliminate the introduction of pollutants into the receiving watershed (40 CFR 130.2, EPA Water Quality Standards Regulation). BMPs are usually applied as a system of practices rather than a single practice. They are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility.

The Forest Plan states that soil and water conservation practices, as outlined in the Soil and Water Conservation Practices Handbook (FSH 2509.22, May 1988), will be incorporated into all land use project plans as a principal mechanism for controlling non-point pollution sources, meeting soil and water quality goals, and protecting beneficial uses. Activities found not to comply with the soil and water conservation practices or State standards will be brought into compliance, modified, or stopped (USDA Forest Service, 2015). Montana State Water Quality Standards require the use of reasonable land, soil, and water conservation practices (analogous to BMPs) as the controlling mechanism for non-point pollution. The use of BMPs is also required in the Memorandum of Understanding between the Forest Service and the State of Montana as part of the agency's responsibility as the designated water quality management agency on National Forest System lands.

### BMP IMPLEMENTATION PROCESS

In cooperation with the State, the Forest Service's primary strategy for the control of non-point sources of pollution is based on the implementation of preventive practices (i.e., BMPs). The BMPs have been designed and selected to protect the identified beneficial uses of the watershed.

The Forest Service non-point source management system consists of the following steps:

- 1) BMP Selection and Design - Water quality goals are identified in the Forest Plan. These goals meet or exceed applicable legal requirements including State water quality regulations, the Clean Water Act, and the National Forest Management Act. Environmental assessments for projects are tiered to Forest Plans using the National Environmental Policy Act process. The appropriate BMPs are selected for each project by an interdisciplinary team. In each new location, there is flexibility to design different BMPs depending on local conditions and values and

downstream beneficial uses of water. The BMP selection and design are dictated by the proposed activity, water quality objectives, soils, topography, geology, vegetation, and climate. Environmental impacts and water quality protection options are evaluated, and alternative mixes of practices are considered. A final collection of practices are selected that not only protect water quality but meet other resource needs. These final selected practices constitute the BMPs for the project.

- 2) BMP Application - The BMPs are translated into contract provisions, special use permit requirements, project plan specifications, and so forth. This insures that the operator or person responsible for applying the BMPs actually is required to do so. Site-specific BMP prescriptions are taken from plan-to-ground by a combination of project layout and resource specialists (hydrology, fisheries, soils, etc.). This is when final adjustments to fit BMP prescriptions to the site are made.
  - 3) BMP Monitoring - When the resource activity begins (e.g., timber harvest or road building), timber sale administrators, engineering representatives, resource specialists, and others insure the BMPs are implemented according to plan. BMP implementation monitoring is done before, during, and after resource activity implementation. This monitoring answers the question: Did we do what we said we were going to do? Once BMPs have been implemented, further monitoring is done to evaluate if the BMPs are effective in meeting management objectives and protecting beneficial uses. If monitoring indicates that water quality standards are not being met or beneficial uses are not being protected, corrective action will consider the following:
    - a. Is the BMP technically sound? Is it really best or is there a better practice that is technically sound and feasible to implement?
    - b. Was the BMP applied entirely as designated? Was it only partially implemented? Were personnel, equipment, funds, or training lacking which resulted in inadequate or incomplete implementation?
    - c. Do the parameters and criteria that constitute water quality standards adequately reflect human-induced changes to water quality and beneficial uses?
  - 4) Feedback - Feedback on the results of BMP evaluation is both short- and long-term in nature. Where corrective action is needed, immediate response will be undertaken. This action may include: modification of the BMP, modification of the activity, ceasing the activity, or possibly modification of the State water quality standard. Cumulative effects over the long-term may also lead to the need for possible corrective actions.
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## **KNF BMP SELECTION AND DESIGN FORM (KNF-BMP-1)**

### **SITE-SPECIFIC BEST MANAGEMENT PRACTICES.**

Description of the soil and water conservation practices from the Forest Service Soil and Water Conservation Handbook (FSH 2509.22) will be applied in all alternatives. The location where the practices will be applied is specified in the table below. The number found in the percent effective column is based on results from forest plan monitoring. For a more detailed description of a specific BMP, refer to the Soil and Water Conservation Handbook.

#### **Abbreviations used in this table:**

SPS = Special Project Specification  
 TSC = Timber Sale Contract  
 TSA = Timber Sale Administrator  
 SMZ = Streamside Management Zone  
 IDT = Interdisciplinary Team  
 SWCP = Soil and Water Conservation Practice

KNF = Kootenai National Forest  
 PSF = Pre-sale Forester  
 ER = Engineering Representative  
 COR = Contracting Officer's Representative  
 SAM = Sale Area Map  
 FMO = Fire Management Officer

SWCP	SWCP OBJECTIVE	PERCENT EFFECTIVE	RECOMMENDED BEST MANAGEMENT PRACTICES BY IDT/TSA	CONSIDERATIONS FOR BEST MANAGEMENT PRACTICES	PERSON(S) RESPONSIBLE	CONTRACT PROVISIONS
14.01	TIMBER SALE PLANNING - To incorporate soil and water resource considerations into Timber Sale Planning	94%	1. Unit design, mitigation, and effects analysis was done by IDT. 2. TSC will be prepared by PSF that includes Design Criteria from the decision. 3. Use standard RHCA widths unless modified (requires documentation of rationale). 4. Use existing skid trails where feasible.	IDT has evaluated watershed characteristics and estimated response to proposed activities. EIS identifies design criteria to protect soil and water resources. Timber sale contracts will include provisions to meet water quality, soils, and other resources as directed by the Decision.	IDT; PSF	N/A
14.02	TIMBER HARVEST UNIT DESIGN - To insure that timber harvest unit design will secure favorable conditions of water flow, maintain water quality and soil productivity, and reduce soil erosion and sedimentation.	95%	1. Cumulative effects analysis and unit design were performed by IDT. 2. The prescriptions and unit design are consistent with direction outlined in the considerations for Best Management Practices. 3. Use standard RHCA widths unless modified (requires documentation of rationale). 4. Use existing skid trails where feasible. 5. Suitable logging system used for topography, soil type, and season of operation.	Proposed activities were evaluated to estimate the potential watershed response. Prescriptions will be designed to assure an acceptable level of protection for soil and water resources. Management will protect soil/water values by avoiding sensitive areas, adjusting unit boundaries, adding specific BMPs to meet specific SWCPs, applying mitigation, and applying implementation/effectiveness monitoring to trend toward desired conditions.	IDT; PSF	N/A

SWCP	SWCP OBJECTIVE	PERCENT EFFECTIVE	RECOMMENDED BEST MANAGEMENT PRACTICES BY IDT/TSA	CONSIDERATIONS FOR BEST MANAGEMENT PRACTICES	PERSON(S) RESPONSIBLE	CONTRACT PROVISIONS
14.03	USE OF SALE AREA MAPS (SAMs) FOR DESIGNATING SOIL AND WATER PROTECTION NEEDS - To delineate the location of protected areas and available water sources and insure their recognition, proper consideration, and protection on the ground.	93%	<ol style="list-style-type: none"> <li>1. Water courses identified and protected using RHCA/SMZ buffers as a minimum.</li> <li>2. Skidding on dry, frozen, or snow-covered soil conditions.</li> <li>3. Designated skid trails in units with previous harvest.</li> <li>4. Use standard RHCA widths unless modified (requires documentation of rationale).</li> </ol>	The IDT will identify water courses to be protected, unit boundaries, and other features required by other means such as "C" provisions. Ground verification and preparation of SAMs to be included in TSC will be done by PSF. TSA reviews areas of concern with purchaser before operations.	IDT; PSF; TSA	B(T)1.1 B(T)6.5 C(T)6.50#
14.04	LIMITING THE OPERATION PERIOD OF TIMBER SALE ACTIVITIES - To minimize soil erosion, sedimentation, and a loss in soil productivity by insuring that the purchaser conducts his/her operations in a timely manner.	99%	<ol style="list-style-type: none"> <li>1. Units located on soils sensitive to compaction and/or displacement has been identified.</li> <li>2. Designate units needing harvest on frozen or snow covered ground.</li> <li>3. All other ground disturbing activities will occur during dry, frozen, or snow-covered conditions to minimize soil compaction and displacement.</li> </ol>	If limited operating periods are identified and recommended during the analysis by the IDT, the PSF will prepare a contract that includes provision C(T)6.316 and/or C(T)6.4#.	IDT; PSF; TSA	B(T)6.31 B(T)6.311 B(T)6.6 C(T)6.6 C(T)6.316# C(T)6.4#
14.05	PROTECTION OF UNSTABLE AREAS - To protect unstable areas and avoid triggering mass movements of the soil mantle and resultant erosion and sedimentation.	96%	<ol style="list-style-type: none"> <li>1. Unstable landtypes will be identified during the planning process.</li> <li>2. Units found to need further protection will use alternative yarding techniques, seasonal restrictions, and/or unit boundary adjustments.</li> </ol>	If the NEPA analysis concluded that soils/geology in the area were unstable, then BMPs are designed to prevent irreversible soil and water damage.	IDT; PSF; TSA	C(T)6.4#
14.06	RIPARIAN AREA DESIGNATION - To minimize the adverse effects on riparian areas with prescriptions that manage nearby logging and related land disturbance activities.	90%	<ol style="list-style-type: none"> <li>1. Identify areas with or adjacent to wet areas.</li> <li>2. Default RHCA widths will be adhered to unless modified (requires documentation of rationale)..</li> <li>3. SMZ widths will be used as a minimum if modification is proposed.</li> <li>4. Areas found during sale layout will be reported to the Hydrologist and afforded the same protections as those identified during the planning process.</li> </ol>	All activities near streams and wetlands in the decision area will comply with the 2015 KNF Forest Plan and the SMZ law (HB-731). These widths will be included on the sale area map and marked on the ground.	IDT; PSF; TSA	B(T)1.1 B(T)6.5, C(T)6.4# C(T)6.41# C(T)6.50#
14.07	DETERMINING TRACTOR-LOGGABLE GROUND - To protect water quality from degradation caused by tractor logging ground disturbance.	97%	<ol style="list-style-type: none"> <li>1. Avoid tractor logging on unstable slopes and slopes greater than 40% (small areas of the unit may have slopes &gt; 40%).</li> <li>2. Those areas found not to be tractor logged were designated as cable, forwarder, or winter harvest units; or were dropped from the unit.</li> </ol>	IDT has identified tractor-loggable ground (in conjunction with personnel from timber operations) during transportation and timber sale planning process. The results have been used to determine intensity of and restrictions for land disturbance activities. PSF will prepare a TSC that includes provisions stating areas and conditions under which tractors can operate.	IDT; PSF	C(T)6.4# SAM
14.08	TRACTOR SKIDDING DESIGN - To minimize erosion and sedimentation and protect soil productivity by designing skidding patterns to best fit the terrain.	97%	<ol style="list-style-type: none"> <li>1. Identify units with designated or dispersed skid trails.</li> <li>2. TSA and purchaser agree on proposed locations before operation.</li> <li>3. Skidding operation minimizes soil displacement and compaction.</li> </ol>	IDT has identified sensitive areas during the planning process. The TSA will execute the plan on the ground by locating the skid trails with the timber purchaser or by agreeing to the purchaser's proposed locations prior to operation.	IDT; PSF; TSA	B(T)6.422 C(T)6.4#

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14.09	SUSPENDED LOG YARDING IN TIMBER HARVESTING - To protect the soil from excessive disturbance and accelerated erosion and maintain the integrity of the riparian areas and other sensitive areas.	95%.	<ol style="list-style-type: none"> <li>Units that have slopes that are unsuitable for or sensitive to ground base skidding will be identified during analysis and listed in the Design Criteria.</li> <li>Units with sustained slopes &gt;40% will be designated cable harvest units.</li> </ol>	IDT recognizes the hazards associated with operating on steep and/or rocky slopes. Areas found to be of concern will use appropriate harvest systems that provide for a safe work environment and protect natural resources.	IDT; PSF	B(T)6.42 C(T)6.4# C(T)6.50#
14.10	LOG LANDING LOCATION AND DESIGN - To locate in such a way as to avoid soil erosion and water quality degradation.	99%	<ol style="list-style-type: none"> <li>TSA and purchaser agree on landing locations before operation.</li> <li>Suitable number, size, and location of landings. Use least excavation needed.</li> <li>No side-cast material into sensitive areas or waterways.</li> <li>Install proper drainage.</li> </ol>	TSA must agree to landing locations proposed by the purchaser. Approved landing locations will meet the criteria of: minimal size, least excavation needed, minimum skid roads necessary, no side-cast material into sensitive areas, and have proper drainage.	PSF; TSA	B(T)6.422 C(T)6.422
14.11	LOG LANDING EROSION PREVENTION AND CONTROL- To reduce erosion and subsequent sedimentation from log landing through the use of mitigating measures.	98%	<ol style="list-style-type: none"> <li>Proper drainage will be installed and maintained during operation.</li> <li>Landings will be scarified, seeded, and fertilized upon completion harvest activities.</li> <li>TSA will assess conditions and take necessary steps to insure soil and water protection.</li> </ol>	PSF and TSA assess what is necessary to prevent erosion from landing and to insure stabilization. It is up to the TSA to request technical assistance as needed.	PSF; TSA	C(T)6.6 BT6.64 B(T)6.6C(T)6.633#
14.12	EROSION PREVENTION AND CONTROL MEASURES DURING THE TIMBER SALE OPERATION - To insure that the purchaser's operations shall be conducted reasonably to minimize soil erosion.	91%	<ol style="list-style-type: none"> <li>Designate units with seasonal restrictions.</li> <li>Do not operate during wet periods including spring-snowmelt and/or intense or long-duration rain storms.</li> <li>TSA insures that erosion control is kept current and prevents operation when excessive impacts are possible.</li> </ol>	PSF and TSA sets purchaser's responsibility to prevent soil/water resource damage in TSC. TSA insures that erosion control is kept current and prevents operation when excessive impacts are possible.	PSF; TSA	A13 B(T)6.6 B(T)6.64 C(T)6.6 C(T)6.601# C(T)6.633#
14.13	SPECIAL EROSION PREVENTION MEASURES ON AREAS DISTURBED BY HARVEST ACTIVITIES - To prevent erosion and sedimentation on disturbed areas.	93%	<ol style="list-style-type: none"> <li>Waterbar, seed, fertilizer, and place woody debris on skid trails, landings.</li> <li>Recontour, seed, and place woody debris on constructed skid trails and temporary roads.</li> <li>BMPs may be adjusted by the TSA to meet operational requirements</li> </ol>	IDT identifies locations needing special stabilization measures. If any such areas are identified, BMPs may be adjusted by the TSA to meet operational requirements	IDT; PSF; TSA	C(T)6.601# C(T)6.32# C(T)6.633#
14.14	REVEGETATION OF AREAS DISTURBED BY HARVEST ACTIVITIES - To establish a vegetative cover on disturbed areas to prevent erosion and sedimentation.	95%	<ol style="list-style-type: none"> <li>Seed and fertilize areas of exposed soil with KNF approved seed and fertilizer mix.</li> <li>Disturbed areas covered with slash and/or mulch as necessary.</li> </ol>	The KNF has established vegetation and fertilizer mix to be used in the project area with outlines on the extent to which it should be used. TSA is responsible for seeing that revegetation work required by purchaser is done correctly and in a timely manner. The purchaser will be responsible for revegetation immediately after the completion of harvest. Funds will be collected for the District to do follow-up seeding/fertilizing in years two and three after harvest.	IDT; TSA	C(T)6.01# C(T)6.633#

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14.15	EROSION CONTROL ON SKID TRAILS - To protect water quality by minimizing erosion and sedimentation derived from skid trails.	89%	<ol style="list-style-type: none"> <li>1. Insure proper skid trail location.</li> <li>2. Insure proper drainage on skid trails; avoid concentrating runoff.</li> <li>3. Recontour, seed, and place woody debris on constructed skid trails and temporary roads.</li> <li>4. Insure maintenance of erosion control structures by purchaser.</li> <li>5. Adequate erosion control on temporary roads, skid trails, and harvest-disturbed areas within the unit.</li> </ol>	Erosion control measures may be recommended by the IDT, but site-specifically adjusted by the TSA. TSA will insure erosion control measures are applied prior to expected hydrologic events (spring runoff, high-intensity storms, etc.). Maintenance of erosion control structures by the purchaser may be necessary and requested by the TSA.	TSA	C(T)6.6 C(T)6.633# B(T)6.6 B(T)6.65 B(T)6.66
14.16	WET MEADOW PROTECTION DURING TIMBER HARVESTING - To avoid damage to the ground cover, soil, and water in meadows.	87%	<ol style="list-style-type: none"> <li>1. Units with, or adjacent to, wet meadows, wetlands, and/or ponds will have buffers clearly identified in the sale map and on the ground.</li> <li>2. Units with unmapped wet areas will be reported to Hydrologist and afforded the same protection as those identified during the planning process.</li> <li>3. Standard RHCA widths will be adhered to unless modification is in place.</li> <li>4. The SMZ law will be met or exceeded.</li> </ol>	IDT has identified areas needing special protection. PSF will verify the areas needing protection and prepare the contract to prevent damage to meadows. The TSA will be responsible for on-the-ground protection of meadows. If meadows are found by the TSA during operations, it is their responsibility to either afford them the proper protection or pursue a contract modification.	IDT; PSF; TSA	B(T)1.1 B(T)5.1 B(T)6.422 B(T)6.61 C(T)6.4# C(T)6.62#
14.17	STREAM CHANNEL PROTECTION (IMPLEMENTATION AND ENFORCEMENT) - Protect natural stream flows; provide unobstructed passage of flows; reduce sediment input; and restore flow if diverted by timber sale activity.	92%	<ol style="list-style-type: none"> <li>1. Standard RHCA widths will be adhered to unless modification is in place.</li> <li>2. SMZ widths will be used at a minimum if modification in place.</li> <li>3. SMZ law will be met or exceeded.</li> </ol>	IDT has identified the location of channels in the decision area. PSF will prepare a SAM locating the channels needing protection. Layout crew marks boundaries and trees according to HB-731. TSA will see that TSC items are carried out on the ground. Technical assistance will be consulted as needed.	IDT; PSF; TSA	B(T)1.1 B(T)6.5 B(T)6.6 C(T)6.50# C(T)6.6
14.18	EROSION CONTROL STRUCTURE MAINTENANCE - To insure that constructed erosion control structures are stabilized and working effectively.	92%	<ol style="list-style-type: none"> <li>1. During the period of the TSC, the purchaser is responsible for maintaining their erosion control features.</li> </ol>	During the period of the TSC, the purchaser is responsible for maintaining their erosion control features. If work is needed beyond this time, the District will pursue other sources of funding.	IDT; PSF; TSA	B(T)6.66 B(T)6.67
14.19	ACCEPTANCE OF TIMBER SALE EROSION CONTROL MEASURES BEFORE SALE CLOSURE - To assure the adequacy of required erosion control work on timber sales.	97%	<ol style="list-style-type: none"> <li>1. TSA reviews erosion prevention work before each harvest unit is considered complete.</li> <li>2. The inspection will determine if the work is acceptable and will meet the objective of the erosion control feature.</li> </ol>	A careful review of erosion prevention work will be made by the TSA before each harvest unit is considered complete. The inspection will determine if the work is acceptable and will meet the objective of the erosion control feature. A feature is considered not acceptable if it does not meet standards or is not expected to protect soil/water values. Technical assistance will be used as necessary.	TSA	B(T)6.36
14.20	SLASH TREATMENT IN SENSITIVE AREAS - To protect water quality by protecting sensitive tributary areas from degradation that would result from using mechanized equipment for slash disposal.	93%	<ol style="list-style-type: none"> <li>1. Where harvest is proposed within riparian areas, either slash should be removed with the tree or scattered.</li> <li>2. Mechanical fuels treatments should occur on slopes &lt; 40%.</li> <li>3. Mechanical slash piling should not excessively disturb soil surface.</li> <li>4. Scarification is limited to extent necessary to meet management objectives.</li> </ol>	All activities will comply with the 2015 KNF forest plan. Where harvest within riparian areas is proposed, either the slash would be removed with the tree or scattered and not treated.	TSA; FMO	B(T)6.5 C(T)6.50# B(T)6.7 C(T)6.7 C(T)6.71 C(T)6.753

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14.22	MODIFICATION OF THE TSC - To modify the TSC if new circumstances or conditions indicate the timber sale will cause irreversible damage to soil, water, or watershed values.	100%	1. Environmental modification procedure.	If TSC is not adequate to protect soil/water resources, the TSA and Contracting Officer are responsible for recommending modification of the TSC.	TSA	B(T)8.33
15.01	GENERAL GUIDELINES FOR TRANSPORTATION PLANNING - To introduce soil and water resource considerations into transportation planning.	100%	1. Complete a roads analysis. 2. Transportation plans include installation and maintaining proper drainage.	A roads Analysis has been completed. The IDT has evaluated watershed characteristics and estimated the response of soil and water resources to proposed transportation alternatives and activities.	IDT; ER	N/A
15.02	GENERAL GUIDELINES FOR THE LOCATION AND DESIGN OF ROADS AND TRAILS - To locate and design roads and trails with minimal soil and water impact while considering all design criteria.	95%	1. Follow the 2015 KNF forest plan. 2. Avoid sensitive landtypes, riparian areas, and wetlands during planning. 3. Use the minimum amount of roads and trails necessary to accomplish work. 4. Road designed for drainage efficiency. 5. Road drainage routed through adequate filtration before entering streams. 6. Stream crossings structures of proper size. New or replacement structures should pass the 100 year flow event. 7. Culverts conform to natural streambed and slope. 8. Ditch relief culverts have stable catch basins, inflow end protected from plugging, and skewed.	The IDT has insured that the location and design of roads and trails are based on multiple resource objectives. Mitigation measures have been designed to protect the soil and water resources identified in the NEPA process. Contract provisions will be prepared by the ER that meets the soil and water resource protection requirements.	IDT; ER	N/A
15.03	ROAD AND TRAIL EROSION CONTROL PLAN - To prevent, limit, and mitigate erosion, sedimentation, and resulting water quality degradation prior to the initiation of construction by timely implementation of erosion control practices.	96%	1. Seed and fertilize disturbed areas. 2. Install proper ditching and road slope. 3. Install proper drainage. 4. Incorporate road grade breaks. 5. Use minimum road or trail length/width necessary. 6. Avoid wet areas or areas of sensitive soil types. 7. Slash filter windrows used where needed and feasible.	IDT has established soil/water conservation objectives and mitigation measures. ER will then prepare a contract that reflects the objectives. ER will see that erosion control measures are approved and completed in a timely manner. IDT reviews projects to check effectiveness of erosion control features.	IDT; ER	B(T)6.31 B(T)6.6 B(T)6.312
15.04	TIMING OF CONSTRUCTION ACTIVITIES - To minimize erosion by conducting operations during minimal runoff periods.	98%	1. Avoid construction during wet periods.	IDT has outlined detailed erosion control measures in NEPA process. ER puts these measures into contract provisions. Compliance is assured by Contracting Officer or ER.	IDT; ER	B(T)6.31 B(T)6.312 B(T)6.6 SPS 204
15.05	SLOPE STABILIZATION AND PREVENTION OF MASS FAILURES - To reduce sedimentation by minimizing the chances for road-related mass failures, including landslides and embankment slumps.	99%	1. Avoid construction across unstable areas. 2. Construct embankments following approved engineering practices. 3. Use minimum road or trail length/width necessary. 4. Woody debris not incorporated into road-fill.	Road and trail construction in mountainous terrain requires cutting and loading natural slopes which may lead to landslides and/or embankment failures. In areas with intrinsic slope stability problems, appropriate technical resource personnel must be involved in an interdisciplinary approach to route location.	IDT; ER	N/A

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15.06	MITIGATION OF SURFACE EROSION AND STABILIZATION OF SLOPES - To minimize soil erosion from road cutslopes, fill slopes, and travel ways.	95%	<ol style="list-style-type: none"> <li>1. Seed and fertilize cut and fill slopes.</li> <li>2. Install proper ditching and road slope.</li> <li>3. Install proper drainage.</li> <li>4. Incorporate road grade breaks.</li> <li>5. Install ditch relief culverts before/after stream crossings.</li> <li>6. Cut and fill slopes at stable angles.</li> </ol>	IDT has outlined detailed erosion control measures in the NEPA process. Stabilization techniques are included in contract provisions. Compliance is assured by Contracting Officer or ER.	IDT; ER	SPS 203, 204, 206A 210, 412 619, 625, 626 630 B(T)5.3, B(T)6.31 B(T)6.6, B(T)6.62 B(T)6.66 B(T)6.312, C(T)6.6 C(T)6.601#
15.07	CONTROL OF PERMANENT ROAD DRAINAGE - To minimize the erosive effects of concentrated water and degradation of water quality by proper design and construction of road drainage systems and drainage control structures.	94%	<ol style="list-style-type: none"> <li>1. Avoid long sustained steep grades.</li> <li>2. Install/maintain adequate surface drainage and ditch relief culverts (inlet clean, skewed).</li> <li>3. Prevent erosion of culvert and bridge fills.</li> <li>4. Maintain ditches.</li> <li>5. New roads/temp roads should be constructed outside SMZs/RHCAs.</li> <li>6. Energy dissipaters place at structure outlets.</li> </ol>	IDT has identified locations, design criteria, drainage control features, and mitigation. Compliance will be assured by the ER/Contracting Officer.	ER	B(T)5.3 C(T)5.31# B(T)6.311 B(T)6.6 C(T)6.6
15.08	PIONEER ROAD CONSTRUCTION - To minimize sediment production and mass wasting associated with pioneer road construction.	100%	<ol style="list-style-type: none"> <li>1. Insure stable slopes during construction.</li> <li>2. Seed and fertilize exposed soil.</li> <li>3. Avoid construction during wet periods.</li> <li>4. Use slash filter windrows.</li> </ol>	ER/Contracting Officer will be responsible for enforcing contract specifications. The purchaser is responsible for submitting an operating plan that includes erosion control measures.	ER	B(T)6.6 B(T)5.23 B(T)6.31 B(T)6.312 B(T)6.311 SPS 204
15.09	TIMELY EROSION CONTROL MEASURES ON INCOMPLETE ROADS AND STREAM CROSSING PROJECTS - To minimize erosion of and sedimentation from disturbed ground on incomplete projects.	96%	<ol style="list-style-type: none"> <li>1. Avoid construction during wet periods.</li> <li>2. Use slash filter windrows or silt fence.</li> <li>3. Seed and fertilize disturbed areas.</li> </ol>	IDT has identified project location and mitigation measures in NEPA process. Protective measures will be kept current on all areas of disturbed, erosion-prone areas. TSA insures contract compliance.	IDT; TSA	B(T)6.31 B(T)6.6 B(T)5.23 B(T)6.66 C(T)6.6
15.10	CONTROL OF ROAD CONSTRUCTION, EXCAVATION, AND SIDE-CAST MATERIAL - To reduce sedimentation from unconsolidated excavated and side-cast material caused by road construction, reconstruction, or maintenance.	96%	<ol style="list-style-type: none"> <li>1. Do not side-cast into waterways or sensitive areas.</li> <li>2. Waste material from activities not place in a problem location.</li> <li>3. Use slash-filter windrows or silt fence.</li> </ol>	IDT has identified project location and mitigation measures in NEPA process. Protective measures will be kept current on all areas of disturbed, erosion-prone areas. TSA insures contract compliance.	IDT; TSA	B(T)5.3 C(T)5.31# SPS 203 SPS 204
15.11	SERVICING AND REFUELING EQUIPMENT - To prevent contamination of waters from accidental spills of fuels, lubricants, bitumens, and other harmful materials.	99%	<ol style="list-style-type: none"> <li>1. Insure proper fuel storage and transportation.</li> <li>2. Keep fuel, shop debris, and waste oil from streams, wetlands, ponds, and lakes.</li> </ol>	ER/TSA/Contracting Officer will designate the location, size, and uses of service refueling areas. All projects will adhere to the KNF Hazardous Substance Spill Plan in case of accidents.	ER; TSA	B(T)6.222 B(T)6.34 B(T)6.341
15.12	CONTROL OF CONSTRUCTION IN RIPARIAN AREAS - To minimize the adverse effects on riparian areas from roads.	98%	<ol style="list-style-type: none"> <li>1. Follow the 2015 KNF Forest Plan for construction within riparian areas.</li> <li>2. Use slash filter windrows or silt fence.</li> <li>3. Install/maintain adequate surface drainage and ditch relief culverts.</li> <li>4. Number of stream crossings minimized on new and temp road construction.</li> </ol>	Proposed new and temporary roads will adhere to guidelines in the Montana Streamside Management Zone Law (HB-731). All road activities will follow 2015 KNF Forest Plan.	ER; TSA	B(T)6.5 B(T)6.62 C(T)6.50# SPS 206 SPS 206A

SWCP	SWCP OBJECTIVE	PERCENT EFFECTIVE	RECOMMENDED BEST MANAGEMENT PRACTICES BY IDT/TSA	CONSIDERATIONS FOR BEST MANAGEMENT PRACTICES	PERSON(S) RESPONSIBLE	CONTRACT PROVISIONS
15.13	CONTROLLING IN-CHANNEL EXCAVATION - To minimize stream channel disturbances and related sediment production.	96%	1. Use silt fence to minimize introduced sediment. 2. Use minimum amount of road. 3. Construct minimum number of crossings. 4. Stream channel disturbance minimized, on-site erosion prevented, and sedimentation prevented.	BMP improvements at crossings would adhere to the guidelines in Montana Streamside Management Zone Law (HB-731) and the 2015 KNF Forest Plan.	ER; TSA	B(T)6.5 SPS 204 SPS 206 206A
15.14	DIVERSION OF FLOWS AROUND CONSTRUCTION SITES - To minimize downstream sedimentation by insuring all stream diversions are carefully planned.	93%	1. Divert streamflow around construction. 2. Use silt fence to minimize introduced sediment. 3. Construction during low-flow	Where construction occurs at stream crossings, all required permits would be obtained. This would require the State Fish, Wildlife, and Parks to review the adequacy of the proposed mitigation. Compliance with contract provisions would be done by the ER.	HYD; FB; ER	B(T)6.5 B(T)6.31 C(T)6.50# C(T)6.6
15.15	STREAM CROSSINGS ON TEMPORARY ROADS - To keep temporary roads from unduly damaging streams, disturbing channels, or obstructing fish passage.	97%	1. Consult Watershed Personnel on placement. 2. Use minimum number of stream crossings. 3. Construction during low-flow. 4. Follow the 2015 KNF Forest Plan guidelines for construction within riparian areas. 5. Stream crossings are installed at right angles, if practical. 6. Temporary stream crossings are adequately removed and channel cross-section is restored.	The IDT identifies areas in need of a temporary road during the NEPA process. Proposed stream crossings would adhere to the guidelines in Montana Streamside Management Zone Law (HB-731).	PSF; TSA	N/A
15.16	BRIDGE AND CULVERT INSTALLATION - To minimize sedimentation and turbidity resulting from excavation for in-channel structures.	97%	1. Installation should be done during periods of low flow. 2. Instream sediment retention devices should be used throughout implementation.	IDT has identified project location and mitigation measures in NEPA process. Protective measures will be kept current on all areas of disturbed, erosion-prone areas. TSA insures contract compliance.	IDT; TSA; ER	C(T)6.5#
15.17	REGULATION OF BORROW PITS, GRAVEL SOURCES, AND QUARRIES - To minimize sediment production from borrow pits, gravel sources, and quarries and limit channel disturbance in those gravel sources suitable for development in floodplains.	98%	1. Permit sand and gravel removal in RHCAs only if no alternative exists and adverse effects to water resources are minimized or avoided. 2. Borrow and gravel pits located and left in a condition to prevent sediment delivery. 3. Limit the area of operation to a minimum while providing sufficient area for material processing and stockpiling. 4. Phase development where practicable.	Construct and operate borrow pits, gravel sources, and quarries in a manner that minimizes effects to soil and water resources.	ER	B(T)6.5 C(T)6.50#
15.18	DISPOSAL OF RIGHT-OF-WAY AND ROADSIDE DEBRIS - To insure that debris generated during road construction is kept out of streams and prevent slash and debris from subsequently obstructing channels.	98%	1. Debris and slash generated during road construction should not be side-cast into streams.	Proposed road construction will adhere to the guidelines in the Montana Streamside Management Zone Law (HB-731).	ER	Std Spec 201 SPS 201
15.19	STREAM BANK PROTECTION – To minimize sediment production from stream banks and structural abutments in natural waterways.	98%	1. Take precautions to minimize or eliminate disturbance to stream banks. 2. Maintain instream structures.	IDT has identified project location and mitigation measures during NEPA process. Protective measures will be kept current on all areas of disturbed soils. TSA and ER insure contract compliance.	IDT; ER; TSA	Std Spec 619

SWCP	SWCP OBJECTIVE	PERCENT EFFECTIVE	RECOMMENDED BEST MANAGEMENT PRACTICES BY IDT/TSA	CONSIDERATIONS FOR BEST MANAGEMENT PRACTICES	PERSON(S) RESPONSIBLE	CONTRACT PROVISIONS
15.20	WATER SOURCE DEVELOPMENT CONSISTENT WITH WATER QUALITY PROTECTION - To supply water for road construction and maintenance and fire protection while maintaining water quality.	93%	<ol style="list-style-type: none"> <li>1. Clean equipment before drafting and when changing between water sources to prevent the spread of aquatic invasive species.</li> <li>2. When drafting water, pumps should be screened to prevent entrainment of fish or other aquatic organisms.</li> </ol>	Conduct water drafting at suitable locations and in a manner that avoids or minimizes adverse effects to water quality, fisheries, and other aquatic organisms.	ER; FMO	Std Spec 207
15.21	MAINTENANCE OF ROADS - To maintain all roads in a manner that provides for soil and water protection by minimizing rutting, failures, side-cast, and blockage of drainage facilities.	96%	<ol style="list-style-type: none"> <li>1. Road grading sufficient to maintain road surface where necessary.</li> <li>2. Erosion control features maintained in an operational condition.</li> <li>3. Road grading avoids cutting toe of cut-slope.</li> <li>4. Road and/or culvert maintenance did not side-cast sediment into or near a water body.</li> </ol>	Road maintenance associated with a timber sale is the responsibility of purchaser. The ER/SA will insure that the purchaser maintains roads according to the appropriate maintenance level.	ER; TSA	B(T)5.12 B(T)5.3 B(T)6.6 C(T)6.6 C(T)5.31# C(T)5.32# B(T)6.31
15.22	ROAD SURFACE TREATMENT TO PREVENT LOSS OF MATERIALS - To minimize the erosion of road surface materials and, consequently, reduce the likelihood of sediment production.	98%	<ol style="list-style-type: none"> <li>1. Maintenance of road surface should include proper blading and/or dust abatement.</li> <li>2. Use crush-gravel where necessary.</li> </ol>	Protective measures will be kept current on all areas of disturbed, erosion-prone areas. ER insures contract compliance.	IDT; ER	B(T)5.3 C(T)5.31# C(T)5.314#
15.23	TRAFFIC CONTROL DURING WET PERIODS - To reduce the potential for road surface disturbance during wet weather and reduce sedimentation.	97%	<ol style="list-style-type: none"> <li>1. Road use avoided during wet periods.</li> </ol>	Road restrictions and traffic control measures will be implemented on all haul roads when damage would occur during spring break up. The decision to restrict a road is made by the ER. Hauling restrictions would be controlled by the TSA.	ER; TSA	B(T)6.6 C(T)6.6 C(T)5.316# C(T)5.41#
15.24	SNOW REMOVAL CONTROLS - To minimize the impact of snow melt on road surfaces and embankments and reduce the probability of sediment production resulting from snow removal operations.	97%	<ol style="list-style-type: none"> <li>1. Be careful not to leave snow berm at edge of road where possible.</li> <li>2. Where a berm cannot be avoided, insure proper drainage by opening sections of berm to allow water to leave road surface.</li> </ol>	Snow removal will be kept current on all roads associated with winter logging operations. The TSA insures compliance with contract provisions.	IDT; TSA	C(T)5.316# Std Spec 203.09
15.25	OBLITERATION OF TEMPORARY ROADS - To reduce sediment generated from temporary roads by obliterating them at the completion of their intended use.	97%	<ol style="list-style-type: none"> <li>1. Re-contour road fully where feasible.</li> <li>2. Seed and fertilize exposed soil.</li> <li>3. Pull slash and woody debris back onto rehabilitated road.</li> </ol>	This work will be done on all new temporary roads in the decision area. The work will be done by the purchaser with compliance by the TSA. Roads will be left in a condition to provide adequate drainage without further maintenance.	TSA	B(T)6.63 C(T)6.6 C(T)6.632# C(T)6.633#
18.03	PROTECTION OF SOIL AND WATER FROM PRESCRIBED BURNING EFFECTS - To maintain soil productivity, minimize erosion, and prevent ash, sediment, nutrients, and debris from entering surface water.	100%	<ol style="list-style-type: none"> <li>1. Follow 2015 KNF Forest Plan Riparian Guidelines for burning in RHCAs.</li> <li>2. Adhere to SMZ Law.</li> <li>3. Where harvest within riparian areas is proposed, either the slash should be removed with the tree or scattered and not treated.</li> <li>4. Limit soil and water quality impact of prescribed fire.</li> <li>5. Adequate erosion protection on firelines, sufficient until stabilized by vegetation.</li> </ol>	Broadcast burning adjacent to riparian areas will adhere to guidelines in the Montana Streamside Management Zone Law (HB-731). Prescribed burn plans identify the conditions necessary to prevent soil damage and meet site preparation objectives.	FMO	N/A